

SOME FISHES OF THE FAMILY LEIOGNATHIDÆ.

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(Plates XIII-XIV and one Text-figure).

In the present paper, several hitherto little-known species of Pony Fishes (Leiognathidæ) are redescribed and figured from their types or from authentic specimens, and an attempt has been made to classify them into recognizable genera. This has been possible mainly through the kind help of Mr. H. A. Longman, who forwarded me practically the entire collection of Leiognathidæ in the Queensland Museum for study and comparison with the Australian Museum and "Endeavour" collections in Sydney. I am also under obligation to Miss Joyce K. Allan, of the Australian Museum, for most of the illustrations, which render the species easily determinable.

The family Leiognathidæ, as understood here, is substantially the same as that indicated in Jordan's "Classification of Fishes," and may be defined as follows:—

Five to six branchiostegal rays; pseudobranchiæ present; eyes large, on the sides of the head; mouth remarkably protractile; suborbitals not or but feebly ossified, no subocular shelf; lower edge of preoperculum generally serrated; gill-membranes narrowly joined to isthmus; body compressed, generally elevated; air-bladder terminating anteriorly in two horns, pyloric appendages few; scales small, cycloid; dorsal continuous, with eight spines (normally) and from fifteen to seventeen rays; anal with three spines and thirteen or fourteen rays; a procumbent spine before dorsal and anal fins and a row of not very prominent bueklers along bases of soft dorsal and anal fins; colouration generally silvery, darker above, with or without dusky or black markings.

KEY TO THE GENERA.

- A. Mouth protractile horizontally; mandible vertical *Secutor*.
- AA. Mouth protractile downwards; mandible oblique.
 - B. Second dorsal spine more than twice as long as third. (Second anal spine also produced. Supraorbital smooth; teeth villiform; body very deep; breast naked) *Aurigequula*.
 - BB. Second dorsal spine not so produced.
 - C. Seven dorsal spines and more than 18 rays *Argylepes*.
 - CC. Eight (abnormally 9) dorsal spines; less than 18 rays.
 - D. Body elongate, its depth 3 or more in standard length *Macilentichthys*, new genus.
 - DD. Body deep, depth generally about 2-2½ in length.
 - E. Strong hooked teeth in jaws *Gazza*.
 - EE. Teeth weak, small.

F. Breast naked. (Lateral line complete; teeth minute; supraorbital denticulated) *Equula*.

FF. Breast scaly.

G. Teeth fine, small, weak, brush-like; supraorbital entire. (Spinous dorsal generally plain; snout with a dark blotch; lateral line incomplete) .. *Equulites*.

GG. Teeth in a single row in each jaw; supraorbital serrated. (Snout plain, lateral line extending almost to root of caudal fin).

H. No dark mark on dorsal fin (or on nape) *Leiognathus*.

HH. A dark mark or black blotch on spinous dorsal.

I. Depth about 2 or less in length; no dark mark on nape .. *Eubleekeria*.

II. Depth more than 2 in length, a dark mark on nape *Nuchequula*, new subgenus of *Eubleekeria*.

The characters given in this artificial key are apparently constant in species of Leiognathidae, but the combinations of characters given for each genus do not always hold good. The genera are closely related and are easier to distinguish by facies when one is familiar with them than can be expressed in conventional key form.

Genus **ARGYLEPES** Swainson, 1839.

Argylepes Swainson, Nat. Hist. Classif. Fish. Amphib. Rept. ii., July 1839, p. 247. Haplotype, *A. indica* Swainson.

Argyrolepis Agassiz, Nomencl. Zool., 1846, Index Univ., p. 33. Emendation for *Argylepes* Swainson. Not *Argyrolepis* Agassiz, *ibid.*, a genus of Lepidoptera.

A monotypic genus, of whose relationships little appears to be known.

ARGYLEPES INDICA Swainson.

Argylepes indica Swainson, Nat. Hist. Class. Fish. Amphib. Rept. ii., July, 1839, p. 247. Based on "Mitta parah" Russell, Fish. Vizag., 1803, p. 41, pl. clvi., in genus *Scomber*. Vizagapatam, India.

Russell's figure of the type shows a fish of carangoid facies with D. vii./21 and 2 anal spines. Jaws toothed; maxillary of the Leiognathid form; scales either rubbed off or never present; form elongate ovate; lateral line complete, and curving downwards (unless a median ridge of the body has been mistaken for the lateral line).

This species may not belong to the Leiognathidae, and seems to approach *Psenes javanicus* Cuv. & Val., as figured in Day's "Fishes of India." Jordan regarded *Argylepes* as a synonym of *Leiognathus*.

Genus **AURIGEUULA** Fowler, 1918.

"*Halex*" Lacépède, Hist. Nat. Poiss. v., 1803, pp. 460 and 462, footnote 9. Ex Commerson MS. polynomial name: "*Halex corporo late*" &c. = *Clupea fasciata* Lacépède. Name without generic status.

"*Clupeo*" Cuvier & Valenciennes, Hist. Nat. Poiss. x., Sept. 1835, p. 96. Ex Commerson MS. Name without generic status applied to the species called *Clupea fasciata* by Lacépède.

Aurigeuula Fowler, Proc. Acad. Nat. Sci. Philad. lxx., June 4, 1918, p. 17. Orthotype, *Clupea fasciata* Lacépède.

Breast and lower part of belly naked; lateral line complete; second dorsal spine at least twice as long as third, conspicuously produced like a whip in adults; second anal spine also elongate.

AURIGEUULA LONGISPINIS (Cuvier & Valenciennes).

(Plate XIII., figs. 1 and 2.)

- Equula longispinis* Cuvier & Valenciennes, Hist. Nat. Poiss. x., Sept. 1835, p. 94. Waigiou. Not *Equula longispina* De Vis, which is a species of *Equulites*.
- Equula asina* De Vis. Proc. Linn. Soc. N. S. Wales ix., 3, Nov. 29, 1884, p. 544. Capo York, Queensland. Lectotype and cotypes in Queensland and Australian Museums examined. *Id.* Saville-Kent, Prelim. Rept. Food-Fish. Qld. 1889, p. 10 and Gt. Barr. Reef, 1893, p. 369 (listed only).
- Equula fasciata* Schmelztz, Mus. Godef. Cat. iv., May 1869, p. 18 (Samoa and Fiji). *Id.* Saville-Kent, Prelim. Rept. Food-Fish Qld., 1889, p. 10 and Gt. Barrier Reef, 1893, p. 369 (Queensland—Saville-Kent's Qld. Mus. specimens seen). Not *Clupea fasciata* Lacépède, 1803, from Mauritius.
- Equula smithursti* Ramsay & Ogilby, Proc. Linn. Soc. N. S. Wales (2) i., May 25, 1886, p. 11. Hood Lagoon, New Guinea. Holotype in Aust. Mus. examined.
- Leiognathus fasciatus* Jordan & Seale, Bull. U. S. Bur. Fish. xxv., 1906, p. 273. (Samoa; one of their specimens in Aust. Mus. examined.) *Id.* Starks, Stanf. Univ. Publ., Univ. Ser., v., 1911, p. 9 et *ibid.* Biol. Sci., iv., 3, 1926, p. 235 (cranium of Samoan specimen). *Id.* Fowler, Mem. Bish. Mus. x., 1928, p. 153. *Id.* McCulloch, Austr. Mus. Mem. v., 1929, p. 213 (Queensland, &c.). Not *Clupea fasciata* Lacépède, 1803.
- Leiognathus smithursti* Jordan & Seale, Bull. U. S. Bur. Fish. xxv., 1906, p. 273. *Ex* Ramsay & Ogilby. *Id.* Jordan & Dickerson, Proc. U. S. Nat. Mus. xxxiv., 1908, p. 610. (Suva, Fiji). *Id.* Fowler, Mem. Bish. Mus. x., 1928, p. 153.
- Leiognathus asinus* McCulloch & Whitley, Mem. Qld. Mus. viii., 1925, p. 145. *Ex* De Vis. *Id.* McCulloch, Austr. Mus. Mem. v., 1929, p. 213.
- Leiognathus (Aurigeuula) fasciatus* Whitloy, Journ. Pan-Pacif. Res. Inst. ii., 1, 1927, p. 5, No. 127. Fiji.

Description of Lectotype of Equula asina De Vis.

D. viii./16; A. iii./13; P. 20; V. i./5; C. ?; L. lat *circa* 60. Head (16 mm.) 3, depth (28) 1.7 in length to hypural joint (48.5); eye (6) greater than postorbital portion of the head (5.6), snout (5.2), and interorbital (5.6); second dorsal spine (at least 16 mm., tip broken) longer than head; second anal spine (9) longer than third (6.5) and subequal to third dorsal spine (8.6).

Head naked, about as long as high, upper profile steeper than lower; snout roundly convex; eye large, about as deep as its distance to the lower preopercular margin, which is strongly serrated; antorbital spines divergent; supraorbital smooth, maxillary reaching to below anterior fourth of eye; bands of fine, movable, setiform teeth in jaws; gill-rakers pointed, about a millimeter long, at least fifteen on lower limb of first gill-arch.

Body deep, fairly evenly rounded in outline, the upper profile rather more convex than the lower. The type is now almost denuded of scales, but the anterior part of the thorax was evidently naked originally; lateral line complete; axillary scale almost as long as ventral spine; a long procumbent spine before dorsal and anal fins; First erect dorsal and anal spines minute, the second, produced, apparently broken in the type; third dorsal and anal spines with fine flexible points; the bases of the

second and third dorsal and the third anal spines with strong serrations anteriorly ; a few incipient serrations at base of second anal spine ; pectoral rounded, fourth and fifth rays longest ; ventrals reaching about half-way along procumbent anal spine when adpressed ; caudal damaged in type.

The colours have now faded, and De Vis merely stated " silvery with the back brownish silvery."

This species was originally described from two examples, but there are two specimens in the Australian Museum and three specimens in the Queensland Museum marked TYPE. The fins of all the Queensland Museum ones are damaged, but I have selected the smallest specimen of that series as lectotype as it is the least damaged ; the others do not differ in character.

Described from the lectotype of *Equula asina* De Vis, a poor specimen measuring 49 mm. to base of caudal, or about $2\frac{1}{4}$ inches in total length. Queensland Museum Registered No. I. 13/1700—smallest specimen. The two specimens in the Australian Museum (I. 355-356) show the elongate fin-spines better, and the larger (I. 355) is here figured.

Locality.—Cape York, North Queensland ; collected by Kendall Broadbent.

Equula asina De Vis is evidently the young of the species called *Equula smithursti* by Ramsay & Ogilby, and both forms are evidently conspecific with *Equula longispinis* Cuv. & Val., but appear to differ from the original figure of the allied *Aurigequula filigera* (Cuv. & Val.) from the Moluccas.

Description of holotype of Equula smithursti Ramsay & Ogilby.

D. viii./16 ; A. iii./14 ; P. 20 ; V. i./5 ; C. 15 branched rays. L. lat circa 63. Head (43 mm.) 3.5 in length to hypural joint (151) : depth, measured between bases of long dorsal and anal spines (88), 1.7, or, measured vertically below origin of dorsal (81), 1.8 in same ; postorbital portion of head equal to eye and to interorbital (15) and greater than snout (14) ; second anal spine (39 mm. or more, tip apparently broken) not nearly so long as second dorsal spine (94) which is half the total length of the fish (188) ; third dorsal spine (19.5), 2.2, and third anal spine (14), 3 in head.

Head about as long as high, profile concave above the eyes : outline of eyelid broadly pyriform ; orbit almost circular, not so deep as cheek ; interorbital smooth : two minute antorbital spines ; supraorbitals smooth ; lower preopercular margin with inconspicuous serrations ; a band of fine, small, villiform teeth in each jaw ; none on root of mouth ; entire head and nape naked ; about fifteen short, pointed, pectinate gill-rakers on lower limb of first gill-arch.

Body very deep, the upper profile gibbous and the lower forming an obtuse angle : an irregular area on each side of the supraoccipital and the procumbent dorsal spine naked ; scapula, breast, and most of thorax in advance of a line joining pectorals and ventrals naked ; remainder of body covered with small, imbricate, deciduous, cycloid scales of round or oval shape ; tubes of lateral line large anteriorly and

decreasing in size posteriorly ; lateral line complete, dipping a little before following its fairly even and gently eurved course below the dorsal fin, and terminating a trifle in advance of the root of the caudal ; axillary ventral scale almost as long as ventral spine.

Dorsal preceeded by a large procumbent spine ; first true dorsal spine very small ; the second much produced and curved proximally ; the third nearly one-seventh the length of the second, and the posterior spines rapidly decreasing in height ; base of soft dorsal fin equal to that of soft anal ; scaly sheaths protect the bases of the dorsal and anal spines, and rows of spines, which hardly break the skin, flank the bases of the rays ; first anal spine very small, situated on a vertical with the first dorsal ray ; second anal spine produced, nearly three times as long as the third ; third dorsal and anal spines weakly serrated ; pectorals rounded, fourth rays longest ; ventrals reaching, when adpressed, a short distance along the long procumbent anal spine ; vent large, with two openings ; caudal strongly forked, the lobes subequal to head.

The colours have now faded but were originally described as " silvery, washed with blue on the back ; sides of the head tinged with gold : snout, and a band from the upper angle of the eye to the opercle, black."

Described and figured from the holotype of *Equula smithursti* Ramsay & Ogilby, a specimen 151 mm. in standard length or $7\frac{1}{2}$ inches in total length, with the mouth extended. Museum Registered No. B. 9962.

Locality.—Hood Lagoon, South-eastern New Guinea ; purchased from Mr. Harry Smithurst.

In the old collection of the Queensland Museum, there are four small specimens labelled "*Leiognathus fasciatus*" from Cape York, Queensland. These agree with Ramsay & Ogilby's type, but the elongated dorsal spine does not extend so far backwards, doubtless owing to their immaturity. Saville-Kent recorded "*Equula fasciata*" from Queensland and these are almost certainly the specimens upon which his record was based. These specimens are intermediate in size between the types of *Equula asina* and *E. smithursti* and demonstrate that the two are conspecific and, in my opinion, synonyms of *Aurigequula longispinis* (Cuv. & Val.).

Specimens in the Australian Museum labelled *Leiognathus fasciatus* from Samoa (U. S. Bur. Fisheries collection) and Malekula, New Hebrides (Cummins & Stevens) also belong to this species.

Genus **EQUULA** Cuvier, 1816.

Equula Cuvier, Mem. Mus. d'Hist. Nat., Paris, i., " 1815 " = March 1816, pp. 463 and 466. Tautotype, *Scomber equula* (Forskaal) [= Bonnaterre]. Date of publication *vide* Sherborn, Ann. Mag. Nat. Hist. (8), xiii., 1914, p. 365. *Id.* Cuvier, Règne Anim. ed. 1, ii., " 1817 " = before 7 Dec. 1816, p. 323. Date of publication *vide* Mathews, Novit. Zool. xviii., 1911, p. 18. *Id.* Cuvier, Règne Anim. ed. 2, ii., April 1829, p. 212. Orthotype, *Scomber equula*, designated. Not *Equula* Guichenot, Dict. pitt. d'Hist. Nat. viii., 1839, p. 335. Orthotype, *Equula ensifera* Cuvier ; and Valenciennes, Dict. Univ. d'Hist. Nat. v., 1861, p. 382. Orthotype, *E. ensifera* Cuv., which are strictly referable to the genus *Leiognathus*.

Head about one-third of standard length ; lower limb of preoperculum serrated ; mouth protractile obliquely downwards ; second dorsal spine not produced ; eight

dorsal spines ; depth about half the length of the fish ; a band of curved, bristle-like teeth in each jaw ; breast and thorax naked ; lateral line ceasing just before root of caudal ; supraorbital finely denticulated ; no conspicuous colour-markings.

EQUULA DECORA De Vis.

(Text-figure 1).

- Equula decora* De Vis, Proc. Linn. Soc. N. S. Wales, ix., 3, Nov. 29, 1884, p. 543. Cape York, Queensland. Queensland Museum cotypes (No. I. 13/1698) examined. *Id.* Saville-Kent, Prelim. Rept. Food-Fish. Qld., 1889, p. 10 and Gt. Barrier Reef, 1893, p. 369 (listed only).
- Equula argentea* De Vis, Proc. Linn. Soc. N. S. Wales ix., 3, Nov. 29, 1884, p. 542. Cape York, Queensland. Queensland Museum lectotype (No. I. 13/1699) examined. Not *Centrogaster argentatus* Houttuyn 1782, and not *Leiognathus argenteus* Lacépède, 1802. *Id.* Saville-Kent, Prelim. Rept. Food-Fish. Qld., 1889, p. 10, as *argentea* ; Gt. Barrier Reef, 1893, p. 369 (listed only).
- Equula spiniceps* Saville-Kent, Prelim. Rept. Food-Fishes Qld., 1889, p. 10 and Gt. Barrier Reef, 1893, p. 369. *Nomen nudum*. Queensland. Chirotype (Austr. Mus. No. I. 382) from Johnstone River, Queensland, examined.
- Leiognathus spiniceps* McCulloch & Whitley, Mem. Qld. Mus. viii., 1925, p. 145. *Ex* Saville-Kent, Queensland.
- Leiognathus decorus* McCulloch & Whitley, Mem. Qld. Mus. viii., 1925, p. 145. *Ex* De Vis, Queensland. *Id.* McCulloch, Austr. Mus. Mem. v., 1929, p. 213.
- Leiognathus argenteus* McCulloch & Whitley, Mem. Qld. Mus. viii., 1925, p. 145. *Ex* De Vis, 1884, non Lacépède, 1802. Queensland.
- Leiognathus devisi* Whitley, Rec. Austr. Mus. xvii., 3, June 27, 1929, p. 113 (fig. 2). New name for *Equula argentea* De Vis, not *Leiognathus argenteus* Lacépède ; based on De Vis' type. Cape York, Queensland. Holotype (Qld. Mus. No. I. 13/1699) re-examined. *Id.* McCulloch, Austr. Mus. Mem. v., 1929, p. 214.

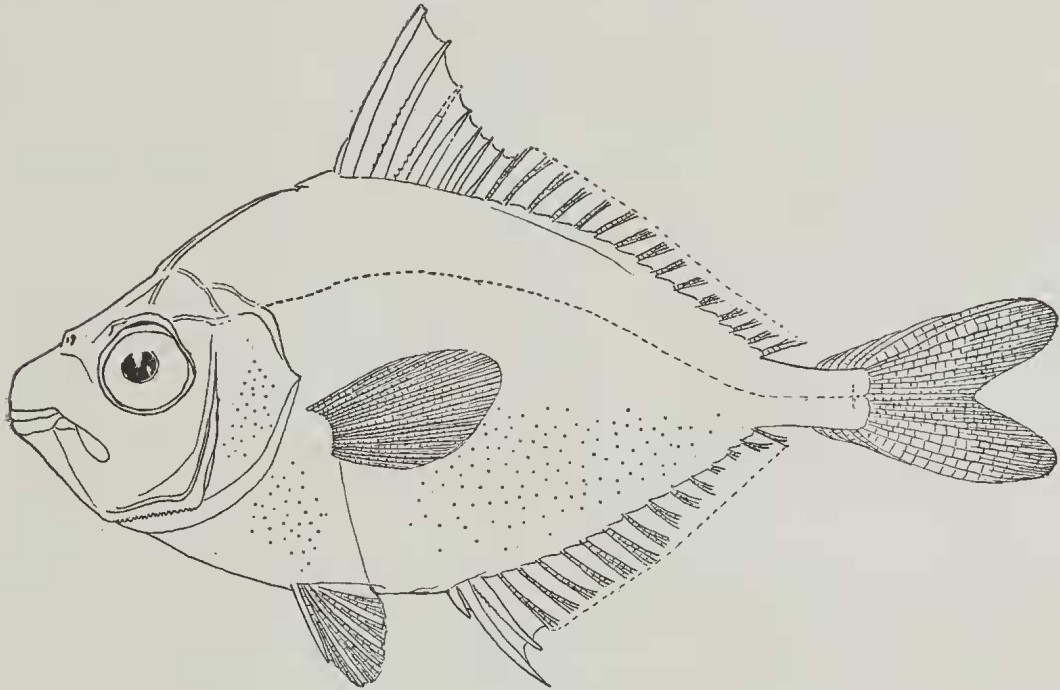
Description of the lectotype of Equula decora De Vis.

D. viii./16 ; A. iii./14 ; P. 21 ; V. i./5 ; C. 16. L. lat. 50 + ? Head (10 mm.) 2.9, and depth (14) 2.07 in length to hypural joint (29) ; eye (3.6) rather greater than postorbital portion of head (3.3) and interorbital (3.1) which is equal to snout (3.1). As the types are young specimens and the heads slightly shrunk in preservation, it is probable that the eye would normally be subequal to these other dimensions in this species. Second dorsal spine (5.5) 1.8, and second anal spine (5) 2 in the head, and shorter than the pectoral fin (6).

Agrees in general details with my description of the holotype of *Equula argentea* De Vis = *Leiognathus devisi* Whitley, published in 1929, and agrees exactly when the type-specimens are compared.

Supraorbital ridge very slightly rugose posteriorly ; inner antorbital spines largest ; gill-rakers slender, pointed, pectinate ; a bony peg protrudes into the branchial aperture before the pectoral base ; the scales are now rubbed off the types of *Equula decora* and it is impossible to observe whether the breast was naked or scaly ; lateral line complete, continuous to caudal, but the tubes are small on the caudal peduncle ; no trace of a black dorsal blotch ; second to fourth dorsal, and second and third anal spines with strong serrations anteriorly along the proximal halves ; these serrations are less conspicuous in the type of *Leiognathus devisi* ; upper caudal lobe longer than head without snout.

The colours have now faded, but De Vis describes them as "Colour silvery, with a pink tinge on the back. Three dark lines, terminating very obscure bands, across the back, at the base of the soft dorsal and one on the edge of the caudal peduncle."



Text-figure 1. *Equula decora* De Vis.

Lectotype of *Equula argentea* De Vis = Holotype of *Leiognathus devisi* Whitley.

Loc. Cape York, Queensland.

G. P. Whitley del.

Described from the lectotype of *Equula decora* De Vis, the smallest of three specimens which have been utilised in making the description, 29 mm. or slightly more in standard length or about $1\frac{3}{8}$ inches in total length.

Six cotypes are recorded by De Vis, but only three are in the Queensland Museum consignment, and there are none in the Australian Museum.

Locality.—Cape York, North Queensland; coll. Kendall Broadbent.

Lectotype of *Equula argentea* De Vis = Holotype of *Leiognathus devisi* Whitley.

The type-specimen, though now almost denuded of scales, has one or two left on the sides of the thorax; lateral line complete; two small antorbital spines; about fifteen pointed gill-rakers on lower limb of first gill-arch; teeth weak, movable, spaced, pointed, arranged in a narrow strip (almost a single series) in each jaw; no black blotch on dorsal fin or on snout; depth 2 in length.

Chirotypes of Equula spiniceps Saville-Kent.

A specimen is labelled *Equula spiniceps* in the Australian Museum (No. I. 382) and may be regarded as the chirotypes of that species. It is $2\frac{3}{4}$ inches long and agrees with the specimens described above in detail.

Locality.—Johnstone River, Queensland; received by exchange from the Queensland Museum in 1886.

Genus **EQUULITES** Fowler, 1904.

Equulites Fowler, Journ. Acad. Nat. Sci. Philad. (2), xii., 4, June 10, 1904, p. 513. Orthotype, *Leiognathus vermiculatus* Fowler.

This genus has the lateral line ceasing well before the caudal fin, and the breast and thorax scaly. The dark wavy marks on the back, slender fin-spines, and graceful form of body are useful recognition marks.

EQUULITES NOVÆHOLLANDIÆ (Steindachner).

Equula novæhollandiæ Steindachner, Denkschr. Akad. Wien xli., 1, 1879, p. 11. Townsville, Queensland (Müller). Type in Stuttgart Museum. *Id.* Klunzinger, Sitzb. Akad. Wiss. Wien lxxx., i., 1879, p. 379 (listed only).

Leiognathus novæhollandiæ McCulloch & Whitley, Mem. Qld. Mus. viii., 1925, p. 145. *Id.* McCulloch, Austr. Mus. Mem. v., 1929, p. 212.

D. viii./16; A. iii./14; L. lat. *circa* 60. Head almost 4.4, depth somewhat more than 3 in total length (nearly 90 mm.); eye and snout about 3, interorbital slightly less than 3 in head; snout conical, somewhat compressed; antorbital spines present; lower border of lower jaw straight; lower margin of preoperculum extremely finely denticulated; the angle slightly more than a right angle.

Body elongate oval: the dorsal profile ascends more strongly in the nuchal region than the corresponding anterior ventral profile; the upper profile of the head rises without any curve to the beginning of the weakly curved occipital slope; body-scales very small, only the pierced ones of the lateral line, of which there are about 60 to the base of the caudal, are moderately large in proportion, and easily deciduous; lateral line very weakly curved to the base of the short, low, caudal peduncle, on which it is horizontal.

First dorsal spine very short; second dorsal and anal spines strongly produced, compressed and flexible; the first as long as the head, the last more than $1\frac{1}{3}$ in the head. When adpressed, the second dorsal spine reaches the middle of the dorsal base. Third dorsal spine more slender, a little longer than the second anal spine, and shorter than the head by somewhat more than half the length of the snout; the pectoral is at least $\frac{2}{3}$ and the ventral about $\frac{2}{3}$ of the head; caudal forked, slightly longer than the head.

Colour (in spirits).—Upper half of body washed with clear reddish-violet, lower half silvery with some speckles; undulating, curved, small, dark stripes on the upper half of the body; sides of snout blackish-brown; dorsal with a black spot on the spinous portion.

The above description has been compiled from a translation of the original account given by Steindachner, who noted that his species was near *Equula leuciscus* Günther, but had the head relatively longer and second dorsal spine shorter.

I have not been able to recognise this species in the series of Queensland fishes which I have studied, and regard its present generic identification as tentative only.

EQUULITES HASTATUS (Ogilby).

(Plate XIV., fig. 1.)

Equula longispina De Vis, Proc. Linn. Soc. N. S. Wales, ix., 3, Nov. 29, 1884, p. 542. Cape York, Queensland. Holotype (Austr. Mus. No. I. 465) examined. Name preoccupied by *E. longispinis* Cuv. & Val., 1835, a species of *Aurigequula*.

Equula lineolata De Vis, Proc. Linn. Soc. N. S. Wales ix., 3, Nov. 29, 1884, p. 545. Cape York. De Vis' specimen seen. Not *Equula lineolata* Cuv. & Val.

Leiognathus hastatus Ogilby, Mem. Qld. Mus. i., 1, Nov. 27, 1912, p. 58. New name for *Equula longispina* De Vis, preoccupied. *Id.* McCulloch & Whitley, Mem. Qld. Mus. viii., 1925, p. 145. *Id.* McCulloch, Austr. Mus. Mem. v., 1929, p. 214.

D. viii./16; A. iii./14; P. 18; V. i./5; C. 15 branched rays. L. lat. circa 45. Head (19 mm.) 3.5, depth (30) 2.2 in length to hypural joint (67); eye (7) subequal to interorbital (7) and postorbital portion of head (7) and longer than snout (6); second dorsal spine (14.5 mm. + ?) and second anal spine (c. 15 mm.) unfortunately broken, but Ogilby stated they were 1.7 and 3.4 in length of body respectively, so the dorsal spine must have been about 39 mm. in length originally.

A narrow strip of long, slender, movable teeth in each jaw; supraorbital very slightly irregular to the touch, but smooth to the sight; lower preopercular margin feebly serrated; antorbital spines small; gill-rakers slender, pointed, pectinate.

Skin pitted. Most of the scales have been rubbed off, but breast evidently originally scaly; second and third dorsal and third anal spines serrated; spines and rays of dorsal and anal fins comparatively longer than in most species of *Leiognathidæ*; the last dorsal spine looks rather like a ray, which may account for De Vis' formula, D. 7/16.

The general characters are as described by Ogilby.

Colour (after long preservation)—Uniform silvery, brownish on back with some irregular grey markings which are now difficult to discern; a dark mark on snout; apparently no black blotch on spinous dorsal.

Described and figured from the holotype of *Equula longispina* De Vis and *Leiognathus hastatus* Ogilby, a specimen 67 mm. in standard length or little over 3½ inches in total length. Australian Museum Registered No. I. 465.

Locality.—Cape York, Queensland; received by exchange from the Queensland Museum in 1886.

This species is distinguished from its congeners by its elongate fin-spines and deep body. It is allied to *Equulites moretoniensis* (Ogilby), of which it seems to be a northern form. The "Endeavour" trawled twenty-five specimens of *E. hastatus* in 19-35 fathoms, N.E. of Gloucester Head, Queensland, in August 1910 (Austr. Mus. Nos. IA, 4909, 4910, 4919; E. 2775, 2776).

EQUULITES MORETONIENSIS (Ogilby).

(Plate XIV., Fig. 2.)

Leiognathus moretoniensis Ogilby, Mem. Qld. Mus. i., 1, Nov. 27, 1912, p. 59. Bulwer, Moreton Bay, Queensland (type: Qld. Mus. No. I 1583) and off Moreton Island, 9 fathoms ("Endeavour" coll.). *Id.* Paradise & Whitley, Mem. Qld. Mus. ix., 1927, p. 84 (Pellew Group, Gulf of Carpentaria). *Id.* McCulloch, Austr. Mus. Mem. v., 1929, p. 214.

A co-type of *Leiognathus moretoniensis* Ogilby is in the Australian Museum (No. I. 12590) from Moreton Bay, Queensland. It is 57.5 mm. in standard length or nearly 3 inches in total length, and is the smaller of the two types from Bulwer. The species has been described in detail by Ogilby, but the following characters are noteworthy.

D. viii./16 (last divided); A. iii./14; P. 17; V. i./5; C. 15 branched rays. L. lat. less than 40, becoming obsolete below last dorsal ray.

Head (17 mm.) 3.3 and depth (25) 2.3 in standard length (57.5); eye (6.5) greater than interorbital (5), snout (5.5), and postorbital portion of head (5.8); second dorsal spine (10 mm. ? incomplete) and second anal spine (10) 1.7 in head; dorsal and anal spines and rays attenuate; top of head pitted; supraorbital rugose; a narrow strip of minute teeth in each jaw; breast scaly.

Snout dusky; no black blotch on dorsal fin: greyish marks on upper part of body and a more or less distinct dark stripe along posterior part of sides, as shown in the accompanying figure; a conspicuous dark band below the base of the soft dorsal fin.

Specimens from Port Darwin and the Pellew Group, North Australia, in the Australian Museum may represent a new variety of this species, as in these the lateral dark stripe is broken up into speckles which extend over the lower parts of the posterior portion of the sides.*

EQUULITES VIRGATUS (Fowler).

? "*Bindoo karah*" Russell, Fish. Vizag. 1803, p. 50, pl. lxiv., in genus *Zeus*. Vizagapatam.

? *Equula bindus* Cuvier & Valenciennes, Hist. Nat. Poiss. x., Sept. 1835, p. 78. Based on Russell, pl. 64. Vizagapatam. *Id.* Cantor, Journ. Asiat. Soc. Bengal xviii., 1850, p. 1130; Cat. Malay. Fish. 1850, p. 148 (Sea of Pinang and Coromandel). *Id.* Günther, Cat. Fish. Brit. Mus. ii., 1860, p. 497. *Id.* Day, Fish. India, 1876, p. 240.

? *Equula bindoides* Bleeker, Nat. Tijdschr. Ned. Ind. i., 1851, pp. 344 and 372. Batavia. *Id.* Günther, Cat. Fish. Brit. Mus. ii., 1860, p. 501.

Leiognathus virgatus Fowler, Journ. Acad. Nat. Sci. Philad. (2) xii., 4, June 10, 1904, p. 515, pl. xv., lower figure to right. Padang, Sumatra. *Id.* Evermann & Seale, Bull. U. S. Bur. Fish. xxvi., 1907, p. 67. (Bulan, Philippine Is.). *Id.* Fowler & Bean, Proc. U. S. Nat. Mus. lxii., 1922, p. 22 (Formosa).

Leiognathus bindus Ogilby, Ann. Rept. Amat. Fish. Assoc. Qld., 1910-11 (July 1911), p. 11. Queensland. Ogilby's specimens in "Endeavour" coll. examined. ? Not *Equula bindus* Cuv. & Val.

* Mr. Melbourne Ward has recently collected specimens of *Equulites moretoniensis* at Pittwater, Broken Bay (Austr. Mus. Regd. Nos. IA. 5428-9). New record for New South Wales.—G. P. W., Feb. 1932.

The F.I.V. "Endeavour" trawled thirty-five specimens of this small-headed deep-bodied, "Orange-tip Pony Fish," off Bowen, Queensland. These were identified as *Leiognathus bindus* by Ogilby, but differ from Russell's figure in their proportions and in having longer fin-spines. They agree fairly well with Fowler's description of *Leiognathus virgatus*, but have the supraorbital rugose and no dark bar on spinous dorsal. Possibly this species should be made the type of a new subgenus, intermediate in some respects between *Eubleekeria* and *Equulites*, but distinct from both in others.

D. viii./16; A. iii./14; P. ii./14. Head 3.4-3.6 and depth 1.5-1.8 in standard length: a single row of fine teeth in each jaw; supraorbital with a band of rugosities; lower preopercular margin with small serrations; lateral line ceasing below soft dorsal fin; curved branches ascend the shoulder-region and cross the upper part of the cheek; breast scaly; thorax very deep; ventral profile more convex than that of dorsal; dorsal and anal spines not nearly as long as head, the fins with dense scaly sheaths: ventrals subequal in length to eye.

After long preservation in formalin, the colour has faded to brown, with spaced punctulations on lower part of body and head and inside the mouth. A large dark blotch on operculum and a smaller one on each side of the snout anteriorly; an interrupted fuscous band along each side of the dorsal base; upper part of body with vermiculate greyish markings; a brown blotch on spinous dorsal; inner surface of pectoral base and of gill-opening with dark spots.

Locality.—Seven miles N.N.E. of Bowen, Queensland; 16 fathoms, August, 1910. Trawled by the F.I.V. "Endeavour." Austr. Mus. Reg. Nos. E. 2528-2529, 2717-2718; IA. 4905-4907, and 4923.

New record for Australia.

Genus **EUBLEEKERIA** Fowler, 1904.

Eubleekeria Fowler, Journ. Acad. Nat. Sci. Philad. (2) xii., 4, June 10, 1904, p. 516. Orthotype, *Equula splendens* Cuvier.

This genus, characterised by having the breast scaly and the lateral line complete, is closely allied to *Leiognathus*, *sensu stricto*. The species fall into two groups, which may be differentiated into those having the depth less than, or about, 2 in length with no dark mark on nape (subgenus *Eubleekeria*) and those with depth more than 2 in length and having a dark nuchal mark. For the latter, I propose the new subgeneric name **NUCHEQUULA**, with *Equula blochii* Cuv. & Val. as orthotype.

EUBLEEKERIA OVALIS (De Vis).

Equula ovalis De Vis, Proc. Linn. Soc. N. S. Wales ix., 3, Nov. 29, 1884, p. 543. Cape York, Queensland. Types (No. I. 1703) in Queensland Museum. *Id.* Saville-Kent, Prelim. Rept. Food-Fish. Qld., 1889, p. 10, and Gt. Barrier Reef, 1893, p. 369 (listed only).

Equula simplex De Vis, Proc. Linn. Soc. N. S. Wales ix., 3, Nov. 29, 1884, p. 544. Cape York, Queensland. Types (No. I. 1702) in Queensland Museum. *Id.* Saville-Kent, Prelim. Rept. Food-Fish. Qld., 1889, p. 10, and Gt. Barrier Reef, 1893, p. 369 (listed only).

Leiognathus ovalis McCulloch & Whitley, Mem. Qld. Mus. viii., 1925, p. 145. *Id.* McCulloch, Austr. Mus. Mem. v., 1929, p. 213.

Leiognathus simplex McCulloch & Whitley, Mem. Qld. Mus. viii., 1925, p. 145. *Id.* McCulloch, Austr. Mus. Mem. v., 1929, p. 212.

Leiognathus splendens Ogilby, Ann. Rept. Amat. Fish. Assn. Qld., 1910-11, (July 11) p. 11. *Id.* McCulloch & Whitley, Mem. Qld. Mus. viii., 1925, p. 145. Not *Equula splendens* Cuvier.

D. viii./16; A. iii./14; V. i./5; P. 18; C. 16. L. lat. ? Head (11.4 mm.) 2.9 in length to hypural joint (34) or 3.7 in total length (43); depth (15.5) nearly 2.2 in length to hypural joint; eye (4) and interorbital (4) equal to postorbital portion of head (4) and greater than snout (3); second dorsal spine (7) 1.6, and second anal spine (4.5) 2.5 in head.

Head longer than high and broadest just behind the eyes, its upper profile not so convex as the lower; vertical and horizontal diameters of eye equal to one another and to the distance across cheek from eye to the strongly serrated lower preopercular margin; two antorbital spines and a series of serræ on the supraorbital; two large nostrils on each side; interorbital sunken, bounded on each side by strong ridges which are widely separated anteriorly but flank, and later join, the median occipital ridge posteriorly; some well-marked radiating striæ at the anterior root of the occipital ridge and others on upper part of operculum; a minute opercular spine; preopercular stay prominent, with a few coarse serræ at its angle; mouth slightly oblique, its gape not extending to below eye; a band of well-developed, hooked, setiform teeth in each jaw; a branch of the lateral line system runs around the posterior margin of the eye and crosses the upper part of the cheek obliquely to ascend the anterior margin of the preorbital, where it vanishes before reaching the snout.

Body subovate, compressed, its profiles of about equal convexity. The type is now almost completely denuded of scales, but those remaining are large, round, cycloid, and with a simple tube on each of the lateral line scales. The lateral line is now damaged, but was apparently originally complete; a row of strong, backwardly directed spines along each side of the base of the dorsal and anal fins; a long alar scale at the base of each ventral fin; a ridge extends from the base of the last pectoral ray to near the alar scale and on a level with the origin of the spinous dorsal fin; in advance of this ridge the breast and thorax are scaly.

Dorsal preceded by a procumbent spine; first erect spine small, the second long and strong, with slightly rugose anterior edge, and followed by the third and fourth spines with prominent serrations on their anterior edges, which are directed to the left and right side respectively; the remaining spines are not serrated and decrease in size posteriorly; the rays of the dorsal, anal, pectoral, and caudal fins are damaged in the type: anal spines without serrations, the second erect spine longest and strongest; ventral spine strong, reaching, when adpressed, to tip of procumbent anal spine; caudal apparently forked.

General colour, after long preservation in formalin, straw-brownish, with dark brown punctulations on snout, extensive membrane of mouth, cheeks, opercles, thorax, and flanks; upper parts of body plain; a black blotch on spinous dorsal membrane.

Described from the lectotype of *Equula ovalis* De Vis, a specimen 43 mm. in total length, selected from ten cotypes, 37 to 45 mm. long.

Locality.—Cape York, Queensland; collected by Kendall Broadbent. Queensland Museum Reg. No. I. 1703.

Synonymy.—On comparing the types of *Equula simplex* with those of *E. ovalis*, I find no characters to maintain the two as distinct species. The middle-sized of three specimens labelled type in the Queensland Museum (No. I. 13/1702) is hereby designated lectotype of *Equula simplex*. This specimen has D. viii./16; A. iii./14. Head (11.5 mm.) 3, depth (17) 2 in length to hypural joint (35.5); eye (4) equal to postorbital portion of head (4) and a little greater than snout or interorbital (3.7); second dorsal spine (7) 1.6 and second anal spine (6) 1.9 in head; total length $1\frac{5}{8}$ inches. Otherwise agreeing exactly with the description of *E. ovalis* given above. The types of both species were collected at Cape York by Broadbent at the same time.

Affinities.—*Eubleekeria ovalis* is closely allied to *E. splendens* (Cuvier) from India, but is plumper in build, with the mouth terminal instead of overhung by snout, and has depth 1.9 to 2.2 in standard length instead of 1.7 to 1.9 as in Madras specimens of the latter species examined by me. The anterior portion of the lateral line dips downwards slightly in *E. ovalis* whereas it is evenly curved throughout its length in *E. splendens* and the latter species has the upper profile of the head steeper.

Besides the types of *Equula ovalis* and *simplex* from Cape York, I have examined specimens identified as *Leiognathus splendens* by Ogilby in the "Endeavour" collection from off Gloucester Head and Bowen and in the Queensland Museum from Cape Bowling Green, collected by Dr. R. Hamlyn-Harris. Reg. Nos. Qld. Mus. I. 1981-1984 and 1987-1988; Austr. Mus. 1A. 4908, 4917-4918, 4920, 4924; "Endeavour" Nos. E. 2520-2524, 2721, and 2780-2781.

EUBLEEKERIA (NUCHEQUULA) NUCHALIS (Temminck & Schlegel).

Centrogaster argentatus Houttuyn, Verh. Holl. Maat. Weet. Haarlem xx., 2, 1782, p. 334 (*fide* Sherborn, Index Anim.). Japan. Not *Leiognathus argenteus* Lacépède, 1802, from India; not *Equula argentea* De Vis, 1884, from Queensland.

Equula nuchalis Temminck & Schlegel, Faun. Japon. (Poiss., 1845), p. 126, pl. lxxvii. (fig. 1). Nagasaki, Japan. *Id.* Richardson, Rept. 15th meet. Brit. Assn. Adv. Sci., 1845 (1846), p. 276 (Canton). *Id.* Bleeker, Verh. Bat. Gen. xxv., 1853, Japan, p. 38 (Nagasaki; described). *Id.* Günther, Cat. Fish. Brit. Mus. ii., 1860, p. 500. *Id.* De Vis, Proc. Linn. Soc. N. S. Wales ix., 1884, p. 545 (Queensland, *i.e.*, Cape York; De Vis' specimens seen). *Id.* Saville-Kent, Prelim. Rept. Food-Fish. Qld., 1889, p. 10, and Gt. Barrier Reef, 1893, p. 369.

Leiognathus nuchalis Bleeker, Ned. Tijdschr. Dierk. iv., 1873, p. 132 and Verh. Akad. Amsterdam xviii., 1879, p. 16 (*fide* Weber & Beanfort, 1911). *Id.* Jordan & Hubbs, Mem. Carnegie Mus. x., 1925, p. 225. *Id.* McCulloch & Whitley, Mem. Qld. Mus. viii., 1925, p. 145. *Id.* McCulloch, Austr. Mus. Mem. v., 1929, p. 213 (Queensland, &c.).

Equula gerreoides De Vis, Proc. Linn. Soc. N. S. Wales ix., 1884, p. 545. Cape York, Queensland; De Vis' specimens seen. Not *E. gerreoides* Bleeker, 1851, from Batavia. Spelt *E. geneoides* by Saville-Kent.

Leiognathus argentatum Jordan & Snyder, Proc. U. S. Nat. Mus. xxiii., 1901, p. 747. *Ex* Houttuyn. Japan.

Leiognathus argentium (sic) Snyder, Proc. U. S. Nat. Mus. xlii., 1912, p. 412 (Suruga Market, Japan).

Leiognathus argenteus Jordan & Metz, Mem. Carnegie Mus. vi., 1913, p. 29 (Fusan). Not *L. argenteus* Lacépède, 1802, from India.

Leiognathus gerreoides McCulloch & Whitley, Mem. Qld. Mus. viii., 1925, p. 145. *Id.* McCulloch, Austr. Mus. Mem. v., 1929, p. 212.

Four Japanese specimens (Nos. I. 13711-2) in the Australian Museum, presented by Mr. S. Nagakami, have the following characters :—

D. viii./16 ; A. iii./14 ; L. lat. 58-62. Head 3.3 and depth 2.1 in standard length ; supraorbital denticulated ; a band of small bristle-like teeth in each jaw ; form ovate, with general characteristics as shown in Temminck and Schlegel's figure ; lateral line complete ; skin of flanks pitted ; breast and thorax naked ; a subtriangular dark blotch on each side of nape ; spinous dorsal membrane with a broad dark brown margin ; a few irregular wavy marks on upper part of body and a fuscous band along each side of the bases of the dorsal fins ; snout dusky, with spaced dots above.

Day (Fish. India, 1876, p. 241) remarks that the type-specimen of *Equula nuchalis* has a naked chest. I have not seen Houttuyn's account of this species but, if his name be binomial, it must take precedence over Temminck and Schlegel's.

The specimens from Cape York, Queensland, which were listed as *Equula nuchalis* by De Vis, are preserved in the "old collection" of the Queensland Museum. They agree with my Japanese specimens but have the head (13-18 mm.) 3.2 and the depth (21-29) 2 in standard length (42-58). Three other specimens in the Queensland Museum (Nos. I. 3491, 3517, 3518) from Bundaberg, Queensland, presented by Mr. L. H. Maynard.

I have examined the series of small specimens recorded from Queensland as *Equula gerreoides* by De Vis and regard them as young forms of *Eubleekeria* (*Nuchequula*) *nuchalis*.

Genus **GAZZA** Rüppell, 1835.

Gazza Rüppell, Neue Wirbelth. Abyssin., Fische, 1835, p. 3. Haplotype, *G. equulæformis* Rüppell. *Id.* Günther, Cat. Fish. Brit. Mus. ii., 1860, p. 506. *Id.* Klunzinger, Fische Rothen Meeres, 1884, p. 107. *Id.* Regan, Ann. Mag. Nat. Hist. (8), xii., 1913, p. 122.

Mouth protractile obliquely downwards, armed with a series of well developed curved teeth, largest anteriorly ; gill-rakers elongate ; lower margin of preoperculum serrated ; supraorbital smooth, or with only minute serræ ; depth 2 or more in length ; breast naked ; lateral line ceasing on anterior part of caudal peduncle ; dorsal and anal spines not produced ; no dark blotches on head, body, or fins.

This genus includes *Gazza equulæformis* Rüppell, whose figure of the type agrees fairly well with Queensland specimens thus identified by De Vis, and upon which the above definition of the genus is based, *Gazza minuta* (Bloch), of which *Equula dentex* Cuv. & Val. is a synonym, *G. achlamys* Jordan and Starks, *G. tapeinosoma* Bleeker and its ally *G. dispar* De Vis, and *G. argentaria* (Bloch & Schneider), with *Sparus scombroides* and *Chromis scombroides* Günther as synonyms.

GAZZA DISPAR (De Vis).

Equula dispar De Vis, Proc. Linn. Soc. N. S. Wales ix., 3, Nov. 29, 1884, p. 542. Cape York, Queensland. Holotype (No. I. 13/1701) in Queensland Museum examined. *Id.* Saville-Kent, Prelim. Rept. Food-Fish. Qld., 1889, p. 10, and Gt. Barrier Reef, 1893, p. 369 (listed only).

Leiognathus dispar McCulloch & Whitley, Mem. Qld. Mus. viii., 1925, p. 145. *Id.* McCulloch, Austr. Mus. Mem. v., 1929, p. 212 (listed only).

D. viii. ?/17 ; A. iii./14 ; P. 18 ; V. i./5 ; C. 16. Head (8.5 mm.) 3, depth (10) 2.6 in length to hypural joint (26) : eye (3.1) 2.7, interorbital (2.5) 3.4, snout (2.1) 4 in head : second anal spine (4) 2.1 in head ; dorsal spines damaged in type.

The type-specimen of *Equula dispar* is a small specimen, 33 mm. in total length. The spinous dorsal fin, jaws, and opercles are damaged, so that accurate description is difficult and figuring impracticable.

Head deep, the upper profile much less steep than the lower ; interorbital with a median ridge, separate from the supraoccipital ridge and flanked on each side by two smooth supraorbital ridges ; two antorbital spines ; eye large, circular, not so deep as cheek below it ; lower preopercular margin irregularly serrated ; maxillary reaching to below anterior fourth of eye ; jaws armed with a single series of strong, rather close-set, slightly curved teeth which are of fairly even height except near the symphysis, where larger teeth occur ; gill-rakers elongate, pointed, the longest about 1 mm. ; thirteen on lower limb of first gill-arch.

Body compressed, deepest anteriorly, the lower profile more convex than the upper. The type is now almost denuded of scales. The lateral line follows the curve of the back but is now indistinguishable from below the soft dorsal fin. De Vis, however, remarked that it was, "continued to the caudal peduncle."

A procumbent dorsal and anal spine ; some raised serrations on the anterior surfaces of the bases of some of the erect dorsal and anal spines ; a small axillary ventral scale ; a slight ridge extending from below pectoral base to near ventral fin ; caudal bilobed.

Colour now faded to straw-yellowish with spaced brown punctulations on lower parts of head and sides and along base of soft dorsal fin. De Vis described the colours as "silvery-brown on the back with a series of blotches below the base of the dorsals."

Described from the holotype of *Equula dispar* De Vis, a specimen 26 mm. in standard length or about 1 $\frac{1}{4}$ inches long. Queensland Museum Reg. No. I. 13/1701.

This species is perhaps merely based on a young specimen of *Gazza tapeinosoma* Bleeker, but as the latter was originally described from Batavia, I hesitate to relegate the Queensland form to its synonymy without critical comparison of specimens. *Gazza dispar* has a more attenuate form than the so-called *G. equulæformis* Rüppell from Queensland, and seems to have fewer teeth than the extralimital *G. argentaria* (Bloch & Schneider).

Genus **LEIOGNATHUS** Lacépède, 1802.

Leiognathus Lacépède, Hist. Nat. Poiss. iv., 1802, p. 448. Haplo type, *L. argenteus* Lacépède = *Scomber edentulus* Bloch. *Id.* Jordan, Proc. Acad. Nat. Sci. Philad. 1918 (1919), p. 336 (not synonymy).

Leiognathus Agassiz, Nomencl. Zool., 1846, Index Univ., pp. 203 and 212. Emendation for *Leiognathus* Lacépède. Logotype, *Leiognathus argenteus* Lacépède, by present designation. *Id.* Regan, Proc. Zool. Soc. Lond., 1903, ii., Oct. 1903, p. 63. *Id.* Regan, Ann. Mag. Nat. Hist. (8) xii., 1913, p. 122.

Authors who have regarded the *Equula edentula* of Day's "Fishes of India" as the type of this genus instead of the original *Scomber edentulus* of Bloch (which Day seems to have misidentified as *Equula lineolata* Cuv. & Val.), appear to have been misled into applying the name *Leiognathus* to the group of species which I have here restricted to *Equula*. The true *Leiognathus edentulus* (Bloch) apparently has scaly breast, dorsal dusky, bars on body, supraorbital serrated, snout plain, and lateral line complete, a group of characters which entitles it to generic separation from *Equula*.

LEIOGNATHUS SERRULIFER (Richardson).

Equula serrulifera Richardson, Zool. Voy. Erebus and Terror, Fish. 1848, p. 137, pl. lix., figs. 12-14. Sydney, New South Wales. Type in British Museum. *Id.* Bleeker, Verh. Akad. Amsterd. ii., 1855, p. 11.

Equula edentula Günther, Intr. Stud. Fish., 1880, p. 450, fig. 200. Australia. Copied from Richardson. Not *Scomber edentulus* Bloch.

Equula edentata (sic) Saville-Kent, Prelim. Rept. Food-Fish. Qld., 1889, p. 5, pl. x., fig. 33; *E. edentula* on p. 10 and on plate, which is copied from Richardson. *Id.* Saville-Kent, Gt. Barrier Reef, 1893, p. 290, and as *E. edentula* on p. 369.

Leiognathus serrulifer McCulloch, Austr. Mus. Mem. v., 1929, p. 212.

Richardson's fish may have been wrongly localised as no member of the family Leiognathidae has yet been reported from New South Wales.* Saville-Kent's Queensland record is unsatisfactory and probably refers to a species of *Equula*. The elongated and strongly serrated dorsal spines should enable this species to be identified without difficulty.

LEIOGNATHUS NOVEMACULEATUS (Klunzinger).

Equula splendens var. *novemaculeatus* Klunzinger, Sitzb. Akad. Wiss. Wien lxxx., 1, 1879, p. 55. Port Denison, Queensland. Type in Stuttgart Museum.

D. ix./16; A. iii./13-14. Height $2\frac{3}{4}$, head $4\frac{1}{5}$ in length. Second dorsal spine $1\frac{1}{2}$ in head; no black blotch on dorsal fin (Klunzinger).

This may be a species of *Eubleekeria*, but a re-examination of the type is much to be desired.

MACILENTICHTHYS, new genus.

Orthotype, **MACILENTICHTHYS POPEI**, new species.

Mouth protractile downwards; teeth small; head subequal to depth of body. D. viii./16; A. iii./14; fin-spines slender, not greatly produced; breast scaly;

* Since writing this, I have received specimens of *Equulites moretoniensis* (q.v.) from Pittwater, near Sydney.—G. P. W., Feb. 1932.

lateral line complete; body elongate, its depth more than 3 in standard length, with irregular dark markings. This genus includes five species from the East Indies, Philippine Islands, Japan, and Formosa, as follows:—

Leiognathus elongatus Smith & Pope = *Macilentichthys popei* Whitley.

Equula elongata Günther = *Macilentichthys elongatus* (Günther).

Leiognathus stercorarius Evermann and Seale = *Macilentichthys stercorarius* (E. and S.).

Equula leuciscus Günther = *Macilentichthys leuciscus* (Günther).

Leiognathus edwardsi Evermann and Seale = *Macilentichthys edwardsi* (E. and S.).

MACILENTICHTHYS POPEI, new species.

Leiognathus elongatus Smith & Pope, Proc. U. S. Nat. Mus. xxxi., Sept. 24, 1906, p. 467. Kagoshima, Japan. Name anticipated by *Equula elongata* Günther, Ann. Mag. Nat. Hist. (4) xiv., Nov. 1, 1874, p. 369, from the Celebes, which is apparently congeneric.

Smith and Pope's species, characterised by having the head equal to the depth and 3.75 in standard length, eye less than postorbital portion of head, and lower preopercular margin finely serrated, evidently requires a new name, as it has a much more elongate body than *Leiognathus* and the specific name has been anticipated by Günther.

Genus **SECUTOR** Gistel, 1848.

Secutor Gistel, Handb. Nat. Thierr. hoh. Schul., 1848, p. ix. Haplotype, *Equula insidiator* (Bloch).

Id. Jordan, Proc. Acad. Nat. Sci. Philad. 1918 (1919), p. 336.

Devevimentum Fowler, Journ. Acad. Nat. Sci. Philad. (2) xii., 4, June 10, 1904, p. 517. Orthotype, *Zeus insidiator* Bloch.

Equula Jordan & Seale, Bull. U. S. Fish. Comm. xxv., 1906, p. 272. Not *Equula* Cuvier, 1816. J. & S. regard *Zeus insidiator* as type of *Equula* but "*Scomber equula* Forskaal" has prior claim as tautotype.

Easily distinguished from the other genera of Leiognathidæ by having the mouth practically vertical and protractile horizontally.

SECUTOR PROFUNDUS (De Vis).

Equula profunda De Vis, Proc. Linn. Soc. N. S. Wales ix., 3, Nov. 29, 1884, p. 544. Queensland coast. Holotype (without registered number) in the Queensland Museum examined. *Id.* Saville-Kent, Prelim. Rept. Food-Fish. Qld., 1889, p. 10, and Gt. Barrier Reef, 1893, p. 369 (listed only).

Leiognathus profundus McCulloch & Whitley, Mem. Qld. Mus. viii., 1925, p. 145. *Id.* McCulloch, Austr. Mus. Mem. v., 1929, p. 213.

D. viii./16; A. iii./14; P. ?; V. i./5; C. 16. L. lat. ? Head (c. 10 mm.) 3.7, and depth (23) 1.6 in length to hypural joint (37); eye (4) subequal to interorbital (4) and greater than snout (2.9) and postorbital portion of head (3.1); second dorsal spine (5) 2 and second anal spine (4) 2.5 in head.

Head elevated, naked, rather shrunken in the type which also has the jaws protracted so that exact measurement of the head is difficult; eye large, as deep as the cheek below it and equal in length to second anal spine; nostrils large, the posterior ones twice the size of the anterior; two upstanding antorbital spines on each side; supraorbital serrated; opercles entire, except the convex lower margin of the preoperculum, which is regularly serrated; mouth protractile in a horizontal direction;

maxillaries subvertical when retracted ; jaws weak, apparently toothless, though the mandibular symphysis feels rough ; gill-rakers very slender, over 1 mm. long and strongly pectinate ; sixteen on lower limb of first gill-arch.

Body very deep and much compressed ; ventral profile deeper and more convex than the dorsal profile, which is more evenly rounded. The type-specimen is denuded of scales, but there are traces anteriorly of a lateral line, which becomes obsolete below the soft dorsal fin, and some rather large scale-pockets on the thorax. De Vis noted the scales as " minutely granular." Anterior portion of breast apparently naked.

Dorsal and anal fins each preceded by a large procumbent spine ; third dorsal and anal spines with some inconspicuous serrations ; base of anal fins less than that of both dorsals ; pectorals damaged, but with the second ray thickened ; ventral spine 2 mm. long, rest of fin damaged ; caudal damaged, apparently forked.

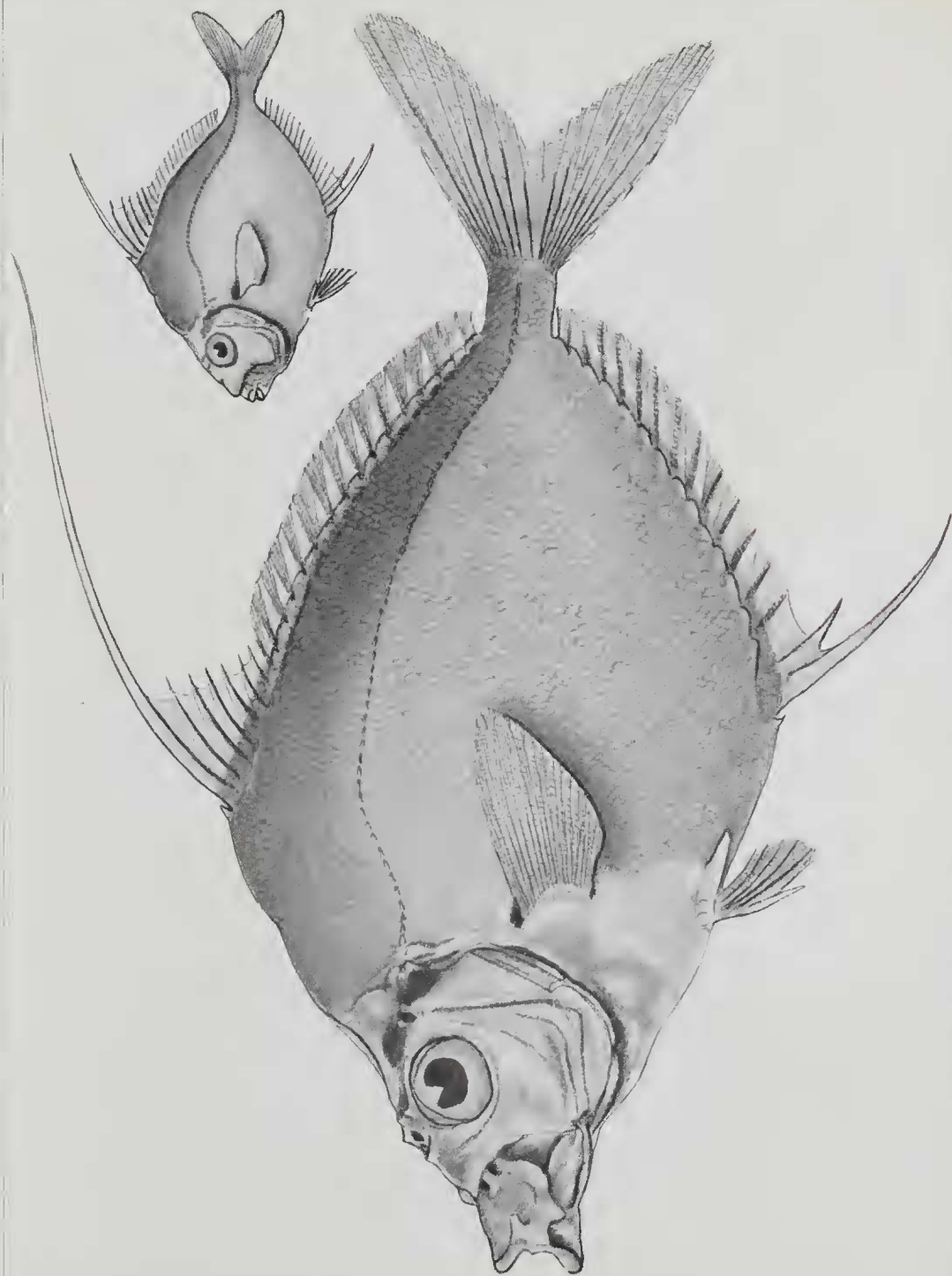
The colour has now faded to brown with widely spaced dots on head and lower part of body ; a row of these dots corresponds to the underlying interlæmals of the anal rays. De Vis described the colours as : " Colour above the vertical line silvery grey, above it a median black longitudinal streak ; between this and the dorsal numerous oblique streaks descending backwards and on its lower side backwardly ascending streaks from a lower longitudinal stripe defining the vertebral line above." Apparently no black blotch on dorsal fin.

Described from the holotype of *Equula profunda* De Vis, a damaged and semi-macerated specimen, 37 mm. in standard length or about $1\frac{3}{4}$ inch. in total length. The dorsal spines have become detached, and the specimen is in such poor condition that it has not been figured.

Locality.—Cape York, North Queensland.

Relationships.—*Secutor profundus* is apparently a valid species distinct from *S. ruconius* (Buchanan-Hamilton) and *S. insidiator* (Bloch), with Indian specimens of which, from Day's collection, I have compared it. Australian specimens identified as *Equula interrupta* Cuv. & Val. may be *Secutor profundus*.

Forty-four specimens (Austr. Mus. Nos. IA. 4911-4915, 4921-4922 ; E. 2525-2527, 2673-2674), trawled off Bowen, Queensland, by the "Endeavour," are apparently referable to this species.



Figures 1 and 2.—*Aurigequula longispinis* (Cuv. and Val.).

Large figure: Holotype of *Equula smithursti* Ramsay & Ogilby. Hood Lagoon, New Guinea.

Small figure: A cotype of *Equula asina* De Vis. Cape York, North Queensland.

Joyce K. Allan del.

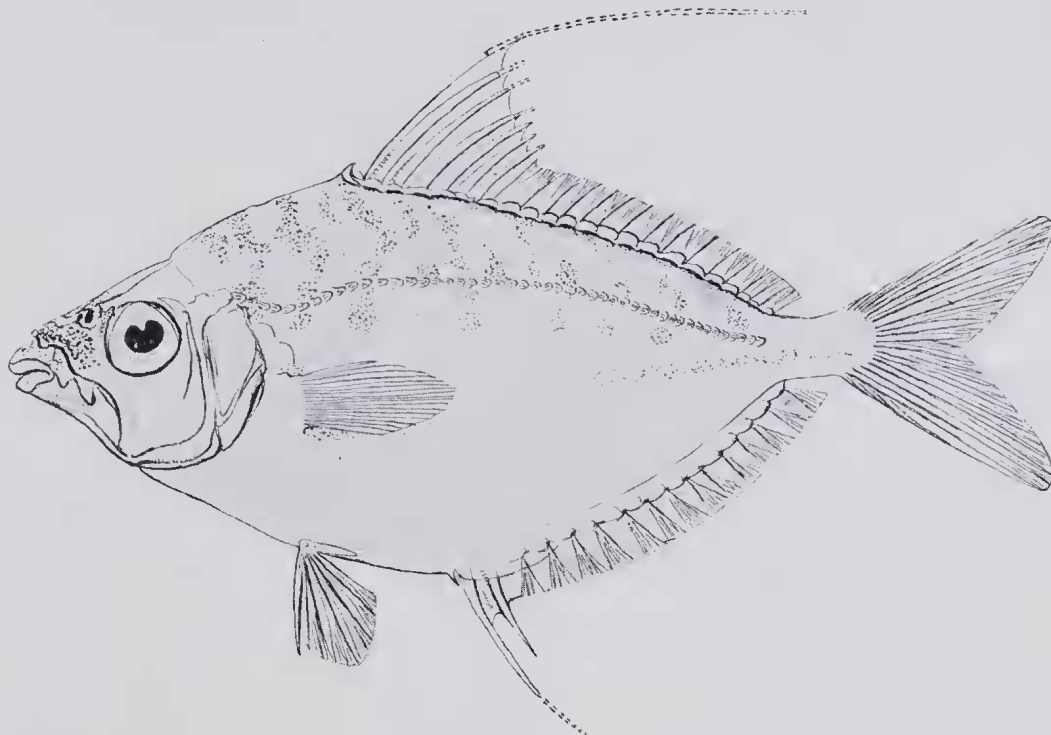


Figure 1.—*Equulites hastatus* (Ogilby)

Holotype of *Equula longispina* De Vis, and of *Leiognathus hastatus* Ogilby. Cape York, Queensland.

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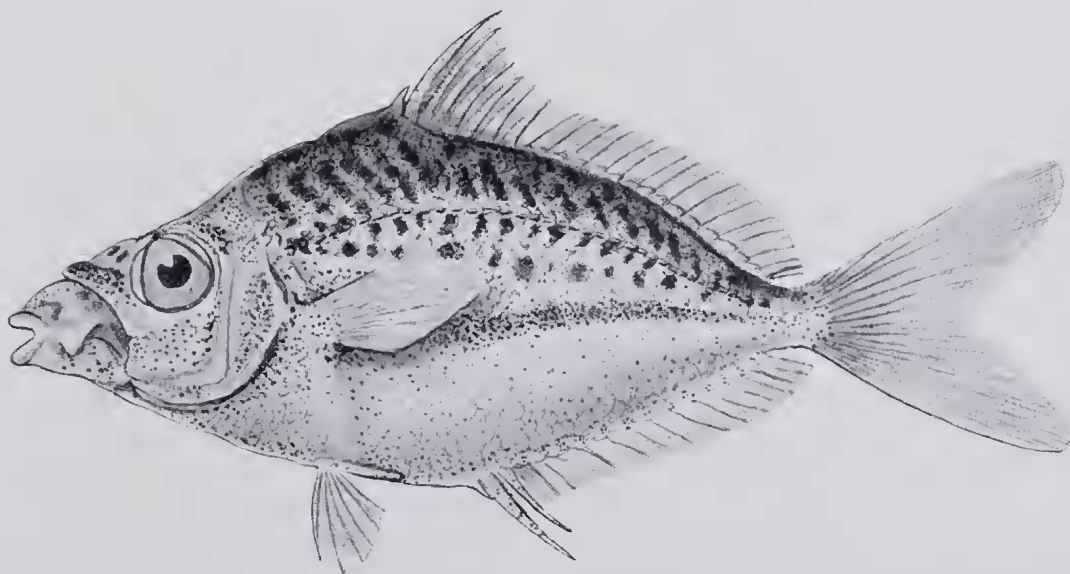


Figure 2.—*Equulites moretoniensis* (Ogilby).

A cotype of *Leiognathus moretoniensis* (Ogilby) Moreton Bay, Queensland.

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